

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau

23 SEP 2004

(43) International Publication Date  
9 October 2003 (09.10.2003)

PCT

(10) International Publication Number  
**WO 03/083306 A1**(51) International Patent Classification<sup>7</sup>: **F04C 2/10**,  
2/08, 13/00, F01C 21/02

(21) International Application Number: PCT/IB03/01233

(22) International Filing Date: 28 March 2003 (28.03.2003)

(25) Filing Language: Italian

(26) Publication Language: English

(30) Priority Data:  
BO2002A000167 29 March 2002 (29.03.2002) IT(71) Applicant (for all designated States except US): CPS  
**COLOR EQUIPMENT S.P.A.** [IT/IT]; Via Dell'Agricoltura, 103, I-41038 S. Felice sul Panaro (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MANFREDINI**,  
Giorgio [IT/IT]; Via della Libertà, 28, I-41032 Cavezzo  
(IT). **BORTOLI**, Uber [IT/IT]; Via F.lli Cairoli, 31,  
I-41037 Mirandola (IT).(74) Agents: **PROVVISIONATO**, Paolo et al.; Provvisionato  
& Co. S.r.l., Piazza di Porta Mascarella, 7, I-40126  
Bologna (IT).(81) Designated States (national): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,  
SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US,  
UZ, VC, VN, YU, ZA, ZM, ZW.(84) Designated States (regional): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Declarations under Rule 4.17:

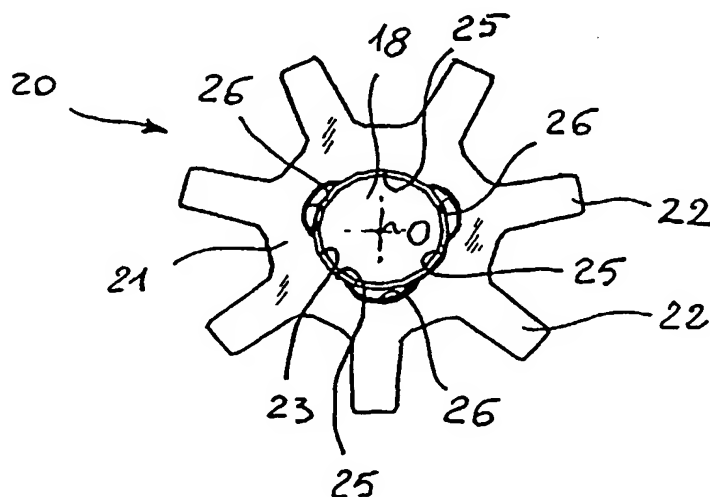
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designation US
- of inventorship (Rule 4.17(iv)) for US only

## Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: INTERNAL GEAR PUMP WITH RECESSES ON THE GEAR BEARING SURFACES



(57) Abstract: A positive-displacement pump, in particular for use in machines for dispensing fluids, comprises two elements that are rotatable with respect to one another and which mesh with one another (20, 30), each of them being rotatably mounted in the pump with centered coupling without interference with a corresponding centering body (18, 11a). At least one of the two above-mentioned rotatable elements has a plurality of undercut regions (26, 34, 35) at the location of the centering walls. The undercut regions (26, 34, 35) comprise a wall portion which is spaced with respect to the facing wall of the respective centering body.